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FIG. 1

ATGATGGTGGATCCCAATGGCAATGAATCCAGTGCTACATACTTCATCCTAATAGGCCTC
CCTGGTTTAGAAGAGGCTCAGTTCTGGTTGGCCTTCCCATTGTGCTCCCTCTACCTTATT
GCTGTGCTAGGTAAGTTGACAATCATCTACATTGTGCGGACTGAGCACAGCCTGCATGAG
CCCATGTATATATTTCTTTGCATGCTTTGAGGCATTGACATCCTCATCTCCACCTCATCC
ATGCCCCAAATGCTGGCCATCTTCTGGTTCAATTCCACTACCATCCAGTTTGATGCTTGT
CTGCTACAGATGTTTGCCATCCACTCCTTATCTGGCATGGAATCCACAGTGCTGCTGGCC
ATGGCTTTTGACCGCTATGTGGCCATCTGTCACCCACTGCGCCATGCCACAGTACTTACG
TTGCCTCGTGTACCAAAATTGGTGTGGCTGCTGTGGTGCGGGGGGCTGCACTGATGGCA
CCCCTTCCTGTCTTCATCAAGCAGCTGCCCTTCTGCCGCTCCAATATCCTTTCCCATTCC
TACTGCCTACACCAAGATGTCATGAAGCTGGCCTGTGATGATATCCGGGTCAATGTCGTC
TATGGCCTTATCGTCATCATCTCCGCCATTGGCCTGGACTCACTTCTCATCTCCTTCTCA
TATCTGCTTATTCTTAAGACTGTGTTGGGCTTGACACGTGAAGCCCAGGCCAAGGCATTT
GGCACTTGCGTCTCTCATGTGTGTGCTGTGTTTCAATTCTATGTACCTTTTATTGGATTG
TCCATGGTGCATCGCTTTAGCAAGCGGCGTGACTCTCCGCTGCCCGTCATCTTGGCCAAT
ATCTATCTGCTGGTTCCTCCTGTGCTCAACCCAATTGTCTATGGAGTGAAGACAAAGGAG
ATTCGACAGCGCATCCTTCGACTTTTCCATGTGGCCACACACGCTTCAGAGCCCTAG

FIG. 2

MMVDPNGNESSATYFILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHE
PMYIFLCMLSGIDILISTSSMPKMLAIFWFNSTTIQFDACLLQMFHLSLSGMESTVLLA
MAFDYVAICHPLRHATVLTLPVTKIGVAHVVRGAALMAPLPVFIKQLPFCRSNILSHS
YCLHQDVMKLACDDIRVNVVYGLIVIIISAIGLDSLLISFSYLLILKTVLGLTREAAKAF
GTCVSHVCAVFIFYVPFGLSMVHRFSKRRDSPLPVILANIYLLVPPVLNPIVYGVKTK
IRQRILRLFHVATHASEP

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FIG. 3

CCACGCGTCCGCTCTGCCCTGAATCCAGGATAGACCAGGACAACAAGATGAGTGGCTAAC
TG TAGGATGGTGTCCATCTGTGCTCTAGGGGAGGAGTAGCATCAAAGGAGAAGCAAGAAC
TGAGAACTGTTTGGGGCACTGAAGAAGTAGGACTAAGGAAGAGTTAGGGGGTTAGTACAA
ATCTGAGGCCTGGTTTTCTGGAAAGAGACCAGAGACTGACCTTATTGCATGTCATACAAC
ATGCTTGCTTAGAGACCCCTAATTTATTTTCTTCTCTTACTCTTTCTGAGGAAGCATGAG
CCACACCCTCAGTTAGTTTTGTATAATCTTAGGCTTGATGAGAATATAATCTTAGTCTTG
AAGGCTTTAAAGGGGAAGAAATAGCTGTCTGTGTTAGTGGTGTGTCAGTCAGCAGGAGAA
CCTGCTAGGGGTGGAAGGAGGAGGGTAGGAGTATAGCCTAGACCATGAGTAGATACCCCG
CTCCACCTTGAAAGTCTCCTACTGGACCTCTTATGATGGAGTTAATACCTCCTGTTTCCT
CTATTCCAGATTGTTTTAGTTTTCCAGAAGGCAAACTGACATCTCCAGGAGTCCAAGT
AGGAGATTAGGGCCTCCCGTCCCTATCTACTCAGTGCTAGCCTTGGCTAAGAGAGAGGAA
ATTCTGCTTAGAGGGGAAAATCTGCAGGACTTCGTTACCACTTTCACTTTGGCAGAGGA
AGGAGGTCAGGGATGGAAGGGGAAGTGAGTCTAGAAATTAAAACATAGAATTCTGTCTAC
AGGTGGTGGAGAGCCTTTCTGAAAGTGCTTCTGGGTTGAGGCTGTACCTAGATTTTATA
TTAGAGTTTAAAGTGTTCCAAAAAATTAAGAAGCAGGAAGTAGAAAAGAGAACAAATTTAG
AAGCAGACGAAAGGAACAGTAATAGGAAGATCTAGCAAGGATGTGGTGGGGCAGTTTCAG
TGTGAGATGCCATGGACAGGAAAATGGCAGCATATGTGTGTGTGTGTGTGTGTGTGTGTG
TCCATGAGACAGAGAGACATAAATAACTAAATAAAAAGGCATATCACAAAGAGGGGCTCC
TGCTTCAGCTTGAGTCCTGGATGCAAAGACATGTGGACTGGGATCCTAGCAACCTATCTG
CAGCCAAGGACATGACGTTAGACGCCCCAAGAAAAGGAAAATTGGTCAAACATAGGAAGA
GCACTCAAGTGCCAGCTACAGTGAATGACAAATACCCACCACAAGCACAAGCTCTACATT
CACAAAACTTGAAAACACAAGTTCATAGACTGGGCAACCCTGAGTAGTGGAGAGATCA
CCAGCCATGTTTCAGGTTGTACCCTCTACCTGCCTGGTGCTGGTCACAGTTCAGCTTCTT
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FIG. 4

GTGTCAGTGATCAAACCTTCTTTTCCATTTCAGAGTCCTCTGATTTCAGATTTTAAATGTTAAC
ATTTTGGGAAGACAGTATTTCAGAAAAAAATTTTCCTTAATAAAAAATACAACCTCAGATCCTT
CAAATATGAACTGGTTGGGGAATCTCCATTTTTCATATTATTTTCTTCTTTGTTTTTC
TTGCTACATATAATTATTAATACCCTGACTAGGTTGTGGTTGGAGGGTTATTACTTTTTCA
TTTTACCATGCAGTCCAAATCTAACTGCTTCTACTGATGGTTTACAGCATTCTGAGATA
AGAATGGTACATCTAGAGAACATTTGCCAAAGGCCTAAGCACGGCAAAGGAAAAATAACA
CAGAATATAATAAAATGAGATAATCTAGCTTAAACTATAACTTCCTCTTCAGAACTCCC
AACCACATTGGATCTCAGAAAAATACTGTCTTCAAATGACTTCTACAGAGAAGAAATAA
TTTTTCCTCTGGACACTAGCACTTAAGGGGAAGATTGGAAGTAAAGCCTTGAAAAGAGTA
CATTTACCTACGTTAATGAAAGTTGACACACTGTTCTGAGAGTTTTTCACAGCATATGGAC
CCTGTTTTTCTTATTTAATTTTCTTATCAACCCTTTAATTAGGCAAAGATATTATTAGTA
CCCTCATTTGTAGCCATGGGAAAATTGATGTTTCAGTGGGGATCAGTGAATTAAATGGGGTC
ATACAAGTATAAAAAATTAAAAAAAAAAAGACTTCATGCCCAATCTCATATGATGTGGAAGA
ACTGTTAGAGAGACCAACAGGGTAGTGGGTAGAGATTTCAGAGTCTTACATTTTCTAG
AGGAGGTATTTAATTTCTTCTCACTCTCTCCAGTGTGTTATTTAGGAATTTCTGGCAAC
AGAACTCATGGCTTTAATCCCACTAGCTATTGCTTATTGTCTGCTCCAATTGCCAATTA
CCTGTGTCTTGGAGAAGTGATTTCTAGGTTCAACATTATGGAAGATTCTTATTCAGAAA
GTCTGCATAGGGCTTATAGCAAGTTATTTATTTTAAAAGTTCCATAGGTGATTCTGATA
GGCAGTGAGGTTAGGGAGCCACCAGTTATGATGGGAAGTATGGAATGGCAGGTCTTGAAG
ATAACATTGGCCTTTTGAGTGTGACTCGTAGCTGGAAAGTGAGGGAATCTTCAGGACCAT
GCTTTATTTGGGGCTTTGTGCAGTATGGAACAGGGACTTTGAGACCAGGAAAGCAATCTG
ACTTAGGCATGGGAATCAGGCATTTTTGCTTCTGAGGGGCTATTACCAAGGGTTAATAGG
TTTCATCTTCAACAGGATATGACAACAGTGTTAACCAAGAACTCAAATTACAAATACTA
AAACATGTGATCATATATGTGGTAAGTTTCATTTTCTTTTTCAATCCTCAGGTTCCCTGA
TATGGATTCCCTATAACATGCTTTCATCCCCTTTTGTAATGGATATCATATTTGGAAATGC
CTATTTAATACTTGTATTTGCTGCTGGACTGTAAGCCCATGAGGGCACTGTTTATTATTG
AATGTCATCTCTGTTTCATCATTGACTGCTCTTTGCTCATCATTGAATCCCCCAGCAAAGT
GCCTAGAACATAATAGTGCTTATGCTTGACACCGGTTATTTTTTCATCAAACCTGATTCTT
TCTGTCCTGAACACATAGCCAGGCAATTTTCCAGCCTTCTTTGAGTTGGGTATTATTTAAA
TTCTGGCCATTACTTCCAATGTGAGTGGAAGTGACATGTGCAATTTCTATACCTGGCTCA
TAAACCCTCCCATGTGCAGCCTTTTCATGTTGACATTAAATGTGACTTGGGAAGCTATGT
GTTACACAGAGTAAATCACCAGAAGCCTGGATTTCTGAAAAAACTGTGCAGAGCCAAACC
TCTGTCAATTTGCAACTCCCACTTGTATTTGTACGAGGCAGTTGGATAAGTGAAAAATAAA
GTACTATTGTGTCAAGTCAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

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FIG. 5

MMVDPNGNES SATYFILIGL PGLEEAQFWL AFPLCSLYLI AVLGNLTIIY
IVRTEHSLHE PMYIFLCMLS GIDILISTSS MPKMLAIFWF NSTTIQFDAC
LLQMFAIHSL SGMESTVLLA MAFDRYVAIC HPLRHATVLT LPRVTKIGVA
AVVRGAALMA PLPVFIKQLP FCRSNILSHS YCLHQDVMKL ACDDIRVNVV
YGLIVIISAI GLDSLISFS YLLILKTVLG LTREAQAKAF GTCVSHVCAV
FIFYVPFIGL SMVHRFSKRR DSPLPVILAN IYLLVPPVLN PIVYGVKTKE
IRQRILRLFH VATHASEP

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FIG. 6A

Q9WVN4 ~~~~~MWP.NSSDA.P..FLLTGFGLGLEMHHWISIPFFVIYFSIIVGNGTLLFIWSD
 Q9WVN5 ~~~~~MWS.NISAA.P..FLLTGFPGLEAAHHWISIPFFAIYISVLLGNGTLLYLIKDD
 Q9Y5P1 ~~~~~MWP.NITAA.P..FLLTGFPGLEAAHHWISIPFFAVYVCILLGNGMLLYLIKHD
 Q9YH55 ~~~~~MYPRNSSQAQP..FLLACLPMAQFHHWVFLPFGLMYLVAVLGNGTLLVVRVH
 HGPRBMY4 ~~~~~MMVDPNGNESSATYFLLTGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTE
 O88628 ~~~~~MSSCNFTHAT.FMLTGLPGLEEAHFWFGFPLLSMYAVALFGNCIIVVFIVRTE
 Q9WU89 MNSKASMLGTNFTIIHPTVEILLGIPGLEQYHTWESI PFCLMYIAAVLGNGALLVVLSE
 Q9WVD9 ~MKVASSFHNDINPDVWVYVLLGIPGLEDLHSWIAIPICSMYIVAVIGNVLLIFLIVTE
 Q9WU93 ~~~~~MSPGNSSWIHPSSFLLGIPGLEELQFWLGLPFGTVYLIAVLGNVILFVVIYLE
 Q9WVD7 ~~~~~MIKFNGSVFMPSVLTLVGIPLGESVQCWIGIPFCVMIIAMIGNSLILVVIKSE

Q9WVN4 HSLHEPMYYFLAVLASMDLGMTLTMTPTVLGVVLVNOREIVHGACFIQSIFYHSLAIVES
 Q9WVN5 HNLHEPMYYFLAMLAGTDLTMTPTVMMAVLWNHREIRHGACFLQAYIIHSLSIVES
 Q9Y5P1 HSLHEPMYYFLTMLAGTDLMTPTVMGILWVNHREISSVGCFLQAYFIHSLSVVES
 Q9YH55 RQLHQPMYYFLMLATTDLGLTSTLPTVLRVFWLGAMEISFPACLIOMFCIHVSFMES
 HGPRBMY4 HSLHEPMYIFLCMLSGIDLLSTSSMPKMLAIFWFNSTTIQFDACLLQMFIAHSLSGMES
 O88628 RSLHAPMYLFLCMLAATDLALSTSTMPKTLAIFWFSREITFDACLAQMFIIHALSATES
 Q9WU89 RTLHEPMYVFLSMLAGTDLTSTTPKTLAIFWFHAGEIPFDACIAQMFIIHVAFAES
 Q9WVD9 HSLHEPMYFELSMALADLLSTATAPKMLAIFWFHSGISFGSCVSQMFIIHFTFVAES
 Q9WU93 HSLHQPMYFLLATLAVTDLGLSTATVPRALGIFWFGFKIAFRDCVAQMFIIHLFTGTET
 Q9WVD7 KSLHIPMYIFLATLAVTDLALSTCILPKMLGIFWFHMPQISFDACLLQMEIHSFQATES

Q9WVN4 GVLLAMSYDRFVAICTPLHYNSILTNSRVKMALGALLRGFVSIVPPIMPLFW.FPYCHS
 Q9WVN5 GVLLAMSYDRFVAICTPLHYNSILTNSRVIAIGLGVVLRGFLSLVPPILPLFW.FSYCRS
 Q9Y5P1 GSLLAMAYDRFAIRNPLRYASIFTNTRVIALGVGVFLRGFVSILPVILRLFS.FSYCKS
 Q9YH55 SVLLAMAFDRYVAICCPRLRYSSILTGARVAOIGLGIICRCTLSSLPLICLLTW.LPFCRS
 HGPRBMY4 TVLLAMAFDRYVAICHLRHAATVLTLPRTKIGVAAVVRGAALMAPLPVFTK.QLPFCRS
 O88628 TILLAMAFDRYVAICHLRHAATVLTLPRTKIGVAAVVRGAALMAPLPVFTK.QLPFCRS
 Q9WU89 GILLAMAFDRYVAICTPLRYSAVLTPTMAIGKMTLAIWGRSIGTIFPTIFLLK.RLSYCR
 Q9WVD9 AILLAMAFDRYVAICYPLRYTILTSSVIGKIGTAAVVRSFLLICFPFIFLVY.RLLYCGK
 Q9WU93 FMLVAMAFDRYVAICNPLRYNTILTNRITCIHVGVLGFKNFILVFPLIFLIL.RLSFCH
 Q9WVD7 GILLAMALDRYVAICNPLRHATIFSPQLTTCLGAGALLRSLITTEPLILIKFCLKVFRT

Q9WVN4 HVLSHAFCLHODVMKLACADITFNLIYPVVLVALTFFLDALIIIFSYYVLILKVMGTASG
 Q9WVN5 HVLSHAFCLHODVMKLACADITFNRIYPVVLVALTFFLDALIIIVFSYYVLILKVMGTASG
 Q9Y5P1 HVIITRAFCLHODVMKLACADITFNRIYPVILISLTIFLDSLIIIFSYYVLILNTVIGTASG
 Q9YH55 HVLSHPYCLHODITRLACTDATNSLYGLILV.LVAILDVFLIALSYIMIFRTVLCITSK
 HGPRBMY4 NILSHSYCLHODVMKLACDDIRVNVVYGLIVITSAIGLDSLLISFSYYVLILKTVLGL.TR
 O88628 NVLSHSYCVHODVMKLAYTDLTPNVVYGLTALLVMGVDVMFISLSYFLITRAVLQOLPSK
 Q9WU89 NVIPHSYCEHIGVARLACADITVNIWYGFSPMASVLVDVALIGISYTLILQAVFRIPSQ
 Q9WVD9 HIIPHSYCEHMGITARLACDNITVNIYGLTMALLSTGLDILLIIISYTMILRTVFOIPSW
 Q9WU93 NIIPHTYCEHMGITARLACVSIKVNVLFG.LILISMILLDVVLSALSAYAKILHAFKLPW
 Q9WVD7 TIISHSYCEHMAIVKLAAQDIRINKICGLLVAFAILGFDIVFITFSYYVRIFITVFOIPQK

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FIG. 6B

Q9WVN4	EERKKS	LNTCVSH	ISCVLVFY	ITVIGLTF	THRF	GKNAPHV	VHITMSY	VYFLFPP	FMNPI
Q9WVN5	EERAKAL	NTCVSH	ISCVLVFY	ITVIGLTF	THRF	GKNAPHV	VHITMSY	VYFLFPP	FMNPI
Q9Y5P1	EERAKAL	NTCISH	ISCVLIFY	VTVMGLTF	TYRF	GKNVPEV	VHITMSY	IYFLFPP	LMNPV
Q9YH55	EEQTKAL	NTCVSH	FCAVLIFY	IPLAGLS	ITHRY	GRNAPP	ISHAVMA	NVYLFV	PPILNPV
HGPRBMY4	EAQAKAF	GTCVSH	VCVAVIFY	VPEIGLS	VMVHRF	SKRRDS	PLPVIL	ANIYLL	VPPVLNPI
O88628	SERAKAF	GTCVSH	ICVVLAFY	VPLIGLS	VMVHRF	GNSLDP	IVHVL	MGDVYLL	LPVILNPI
Q9WU89	DARHKAL	NTCGSH	ICVILLFF	IPSFFTFL	THRF	GKNIPHH	VHILLAN	LYVLV	PPMLNPI
Q9WVD9	AARYKAL	NTCGSH	ICVILLFY	TPAFFSFE	AHREF	GGKTVP	RHILHIL	VANLYV	VVPPMLNPI
Q9WU93	EARLKAL	NTCGSH	ICVILAF	FTPAFFS	FLTHRF	GHNTIP	RYIHILL	ANLYVI	IPXALNPI
Q9WVD7	EARFKAF	NTCIAH	ICVFLQFY	LLAFFSFE	THRF	GAHTIPP	YVHILL	SDLYLL	VPPFLNPI
Q9WVN4	IYSIKTK	QIQRS	ILRLLS	SKHSRT	~~~~~				
Q9WVN5	IYSIKTK	QIQRS	VLHLLS	SV	~~~~~				
Q9Y5P1	IYSIKTK	QIQYGI	ILRLLS	SKHRFSR	~~~~~				
Q9YH55	IYSMKSK	AIICKGL	ILRLCQ	RAAWPGHAQNC	~				
HGPRBMY4	VYGVKT	KEIRQR	ILRLFH	VATHAS	.EP~~~~				
O88628	IYGAKTK	QIRTRV	LAMFKI	SCDKDIEAGGNT					
Q9WU89	IYGAKTK	QIRDS	.MTRML	SVVWKS	~~~~~				
Q9WVD9	IYGVKT	KQIQDR	.VVFL	FSSVSTCQHDSRC	~				
Q9WU93	IYGVRT	KQIQDRA	VITILC	NEVGQLADD	~~~~				
Q9WVD7	VYGIKTK	QIRDQVL	KMFFS	KKPL	~~~~~				

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FIG. 7

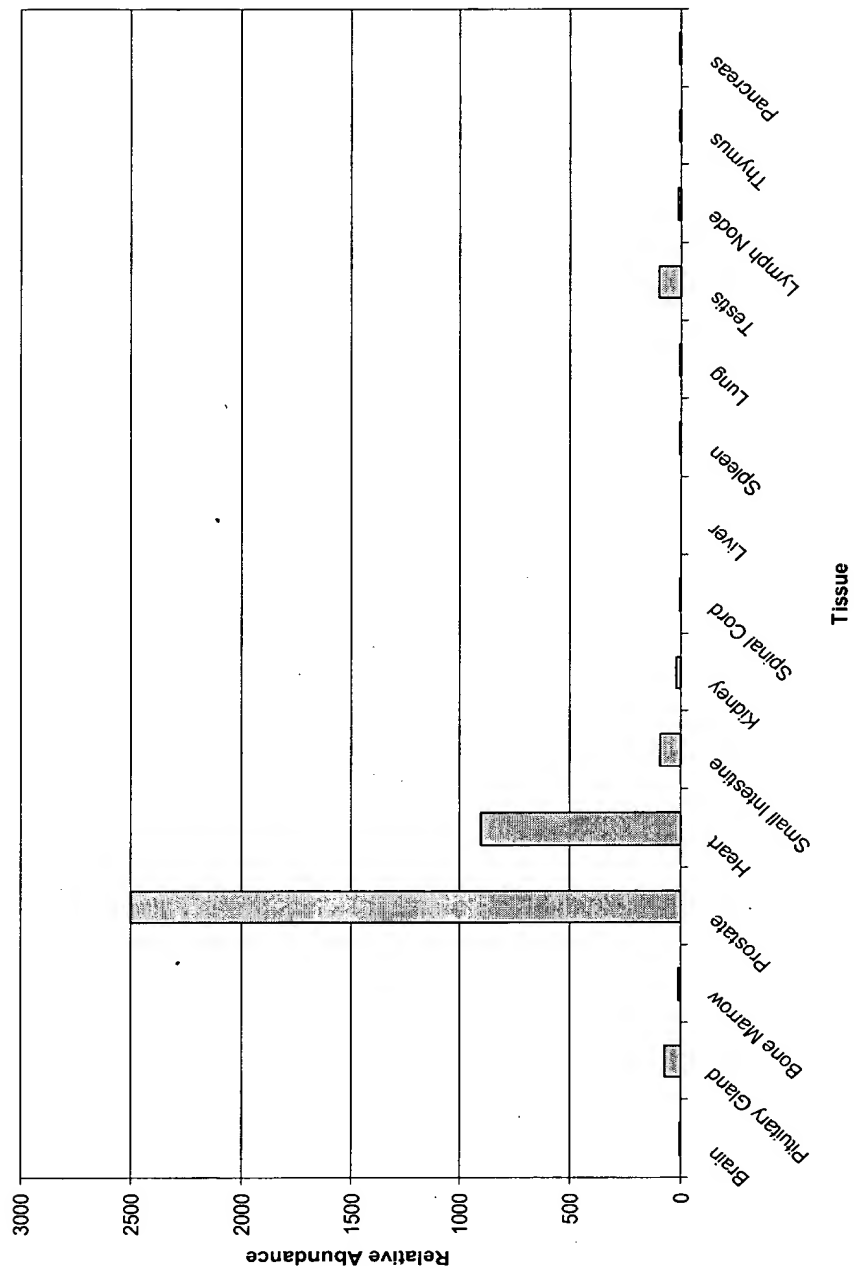


FIG. 8

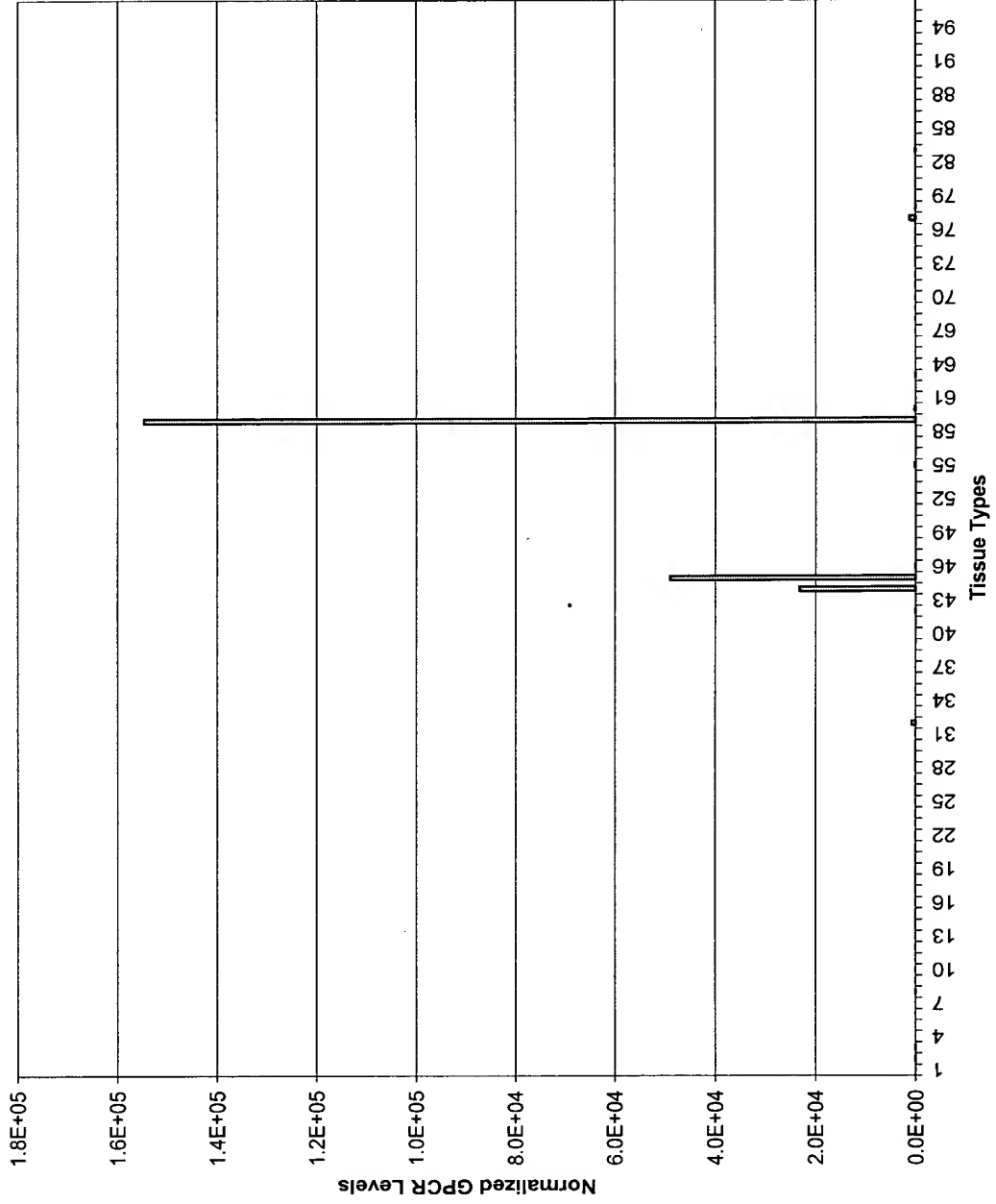


FIG. 9

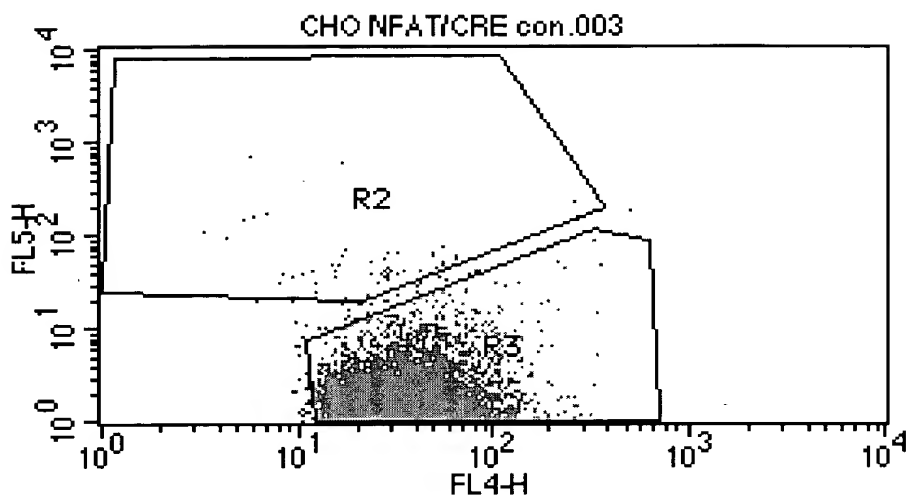


FIG. 10

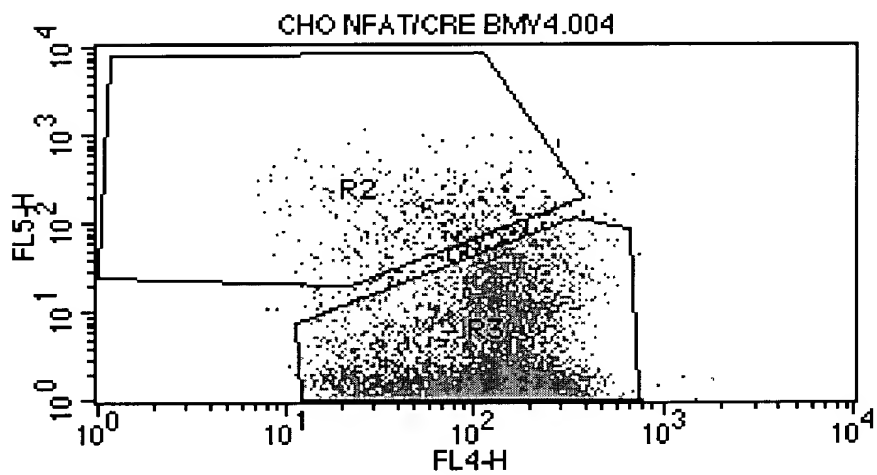


FIG. 11

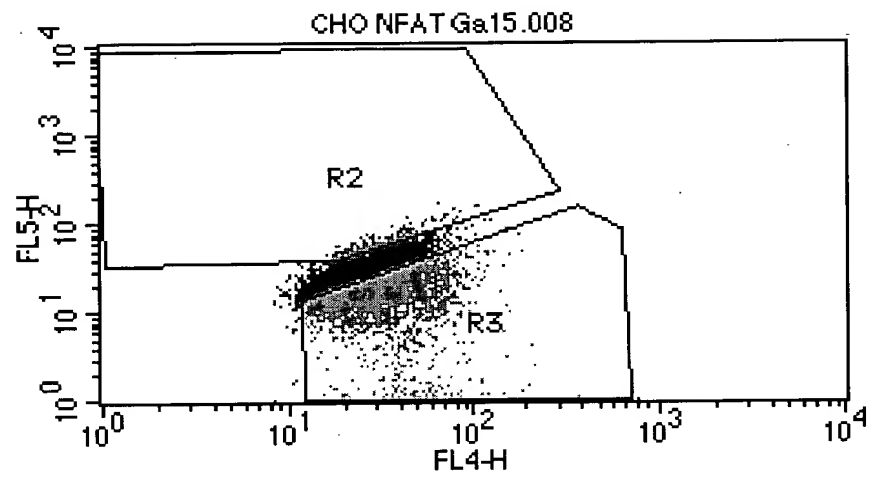
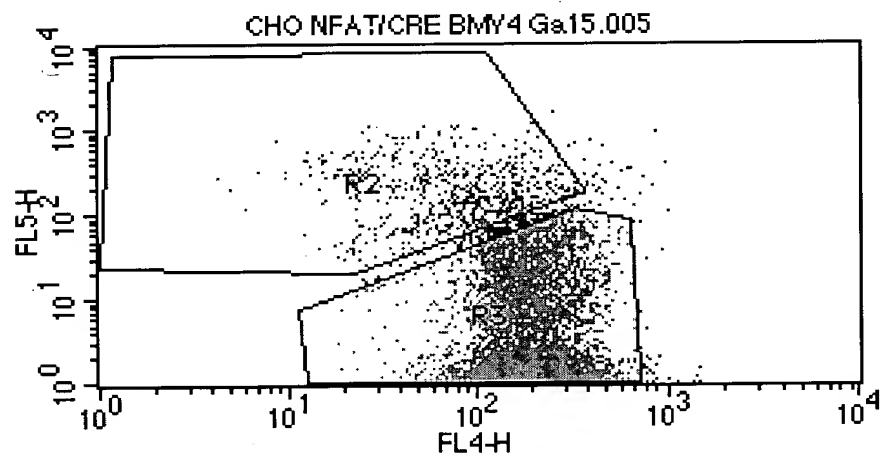


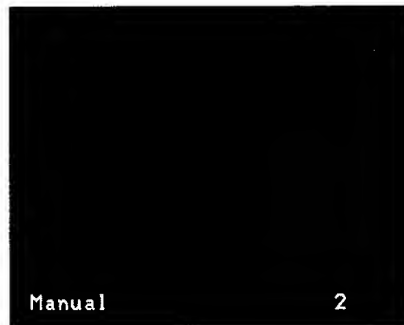
FIG. 12



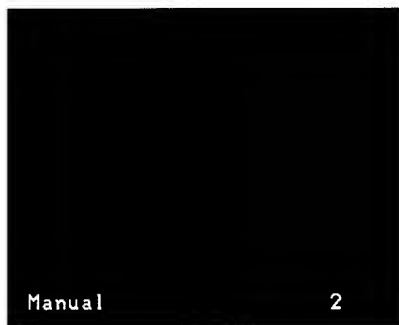
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FIG. 13.

a. CHO-NFAT G alpha 15 (Fluorescent vs. Bright Field)



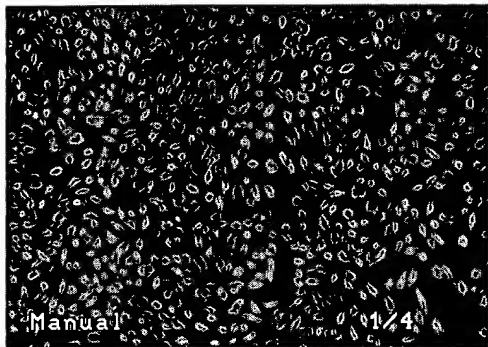
b. CHO-NFAT Galpha 15 HGPRBMY4 (Fluorescent vs. Bright Field)



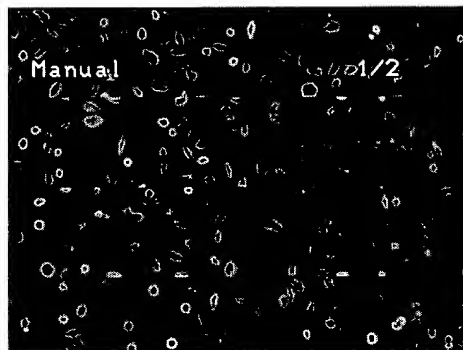
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FIG. 14

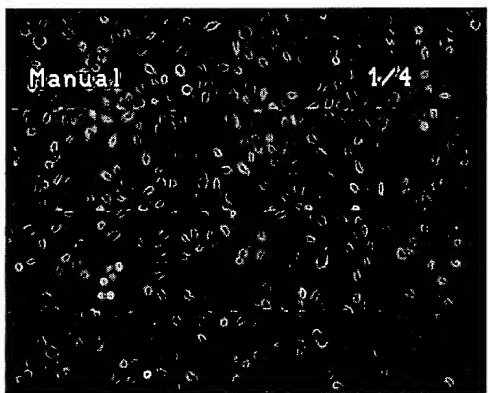
a. CHO-NFAT/ CRE



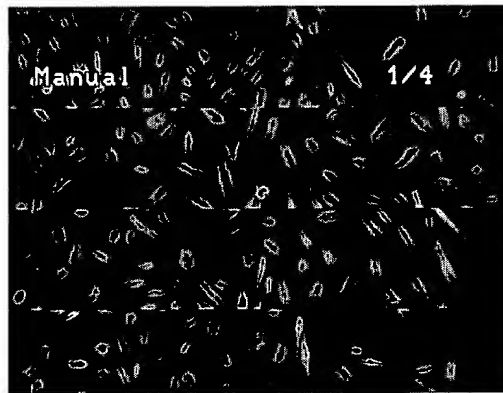
b. CHO-NFAT/CRE + F/T/P



c. CHO-NFAT/CRE oGPCR-Intermediate



d. CHO-NFAT/CRE oGPCR High



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